VIRGINIA WILDLIFE

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TRACKING BACK

–into our history

Volume 50

VIRGINIA WILDLIFE

Number 1

TRACKING BACK
—into our history

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This year in our special photo issue, we've tried to take you backward and forward through our history, through the history of wildlife conservation in this state. Since 1916, we, the Virginia Department of Game and Inland Fisheries, have been the caretakers of Virginia's fish and wildlife, and sometimes it's good to look back, in order to figure out how best to go forward. It's good to look back to check your direction and plan your next course, so that you don't retrace your steps or stumble through the same briar thickets.

We're looking back so that we will recall again the mistakes and the successes, and learn from them. Because we need a clear vision these days, the way the world is looking now. We need to gather our strength and whatever wisdom we've gained and use it to make decisions that will require great courage. Our wildlife depends on it.

Cover: Bison *(Bison bison)*; photo by R.C. Simpson
Inside front cover: White-tailed deer *(Odocoileus virginianus)*; photo by Gregory Scott
Inside back cover: White-tailed deer *(Odocoileus virginianus)*; photo by Kevin D. Shank
Back cover: Winter scene; photo by Shirley M. Whitenack

Dedicated to the Conservation of Virginia's Wildlife and Related Natural Resources

TRACKING BACK

to the unspoiled days 1600-1915

Opposite: Black bear (Ursus americanus americanus); *photo by William Lea*

"The bear, wolf, wildcat, and panther abounded in great numbers, it is believed, and the wolf was so plentiful the court back at the August term, 1804, took official action by paying $2 a head on every wolf killed . . . Burkes Garden was a lair for the wild beast, and as late as 1852 wolves would come down into Burkes Garden and sent a shiver down the backs of the inhabitants with their barking and howling . . . Deer were as thick as rabbits a century ago in Tazewell County and many years later the deer would come down out of East River Mountain and lick salt in Graham. There were no game laws then and hunters could kill all the wild turkeys, pheasants and 'partridges' they wanted. Foxes were as thick as squirrels are now and the lovers of the fox chase must have had a fine time in the old days."
—Roanoke Times, *December 17, 1922*

Everyone knows the story—wildlife pretty much had the run of things here before we arrived in our tiny ships from Europe. Oh, accounts will tell us that Indians could decimate local populations of animals, such as elk and deer, but they couldn't touch entire populations—they didn't have the manpower nor the tools. We can only speculate that the Indians didn't have the desire, either. Of course, they probably didn't have the professed *need* to exterminate any species, either, like I'm sure many homesteaders and early settlers believed they had, when a wolf took an occasional sheep off, or a bear got into corn crops and destroyed acres, ruining a settler's ability to survive in a proper European agrarian fashion.

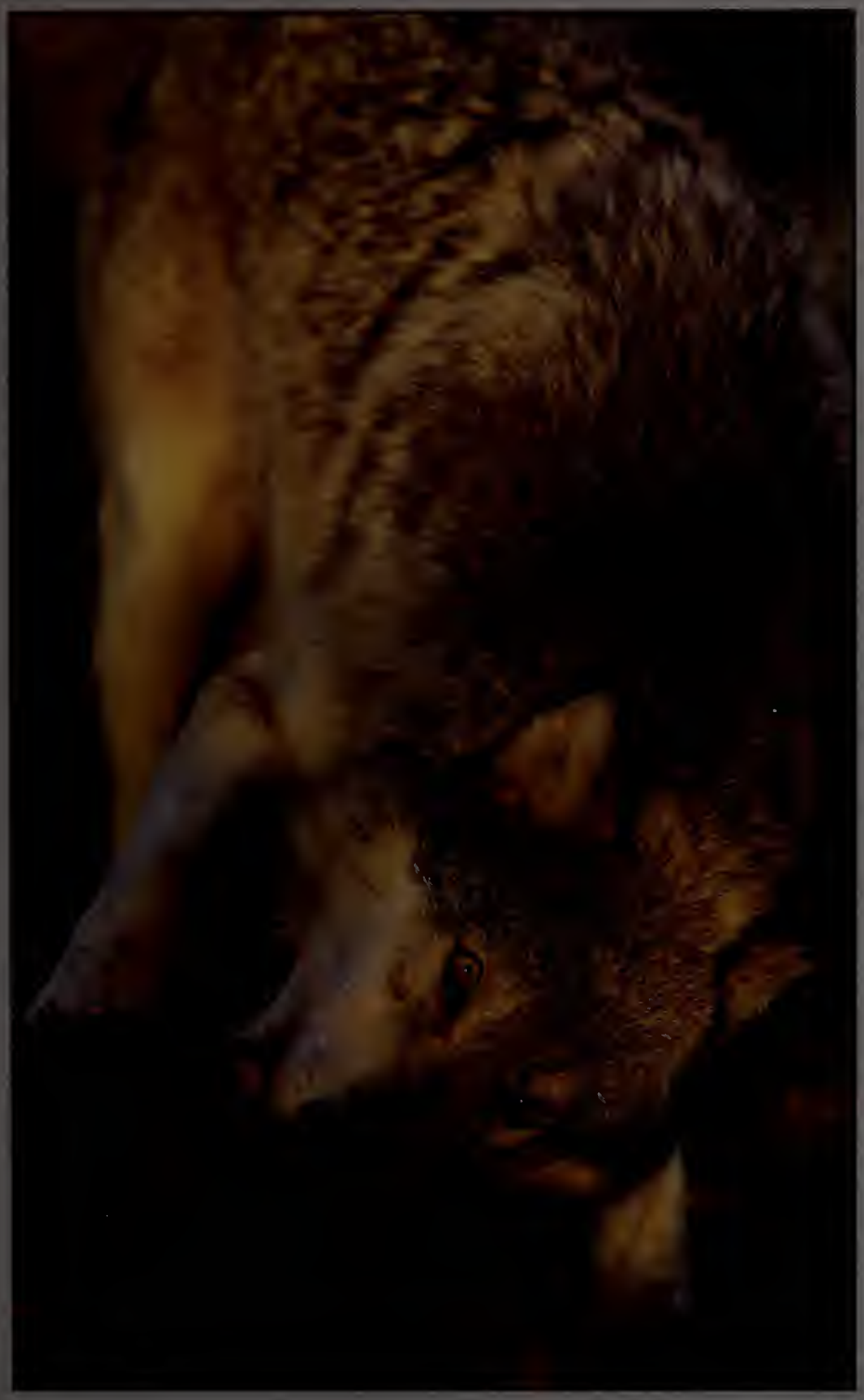
We had a different way of looking at the land to be sure. One could argue that the early Europeans arriving into this country were committed to bending the land to adapt to *their* way of living, instead of the other way around.

As a result, wildlife populations in Virginia suffered. We once had bison, wolves, cougars, elk, and true Virginia born and bred deer and beaver. We once had our world in balance without having to work at it. And then things happened. Like the clearing of land and the war on evil-minded predators whose destruction most all supposed was essential to a man's survival in this strange land. And the belief that we could take from the wildlife and the land without consequence. It was this combination of destruction of habitat and individual animals which resulted in the extermination of the wolf from our state and the near loss of black bear. Further, our desire for beaver pelts cost us our beaver population in 1911, and so went the elk, the bison, and very nearly our white-tailed deer. We wanted too much from the land, and we knew too little.

Still, we didn't lose it all. By the turn of the century, we still had waterfowl covering the skies every fall, and we had pitiful populations of turkeys and deer in the state to remind us of what we had lost. And, as the land slowly adapted to our ways, quail and rabbits moved into abandoned fields and foxes followed them into our chicken yards. But still we did not know the why or the wherefore. We simply survived in our altered world.

Gray wolf (Canis lupus); *photo by Lynda Richardson*

The timber wolf (Canis lupus) *was once distributed over the entire state. According to our records, the last Virginia wolf was killed in Tazewell County in 1910. Specimens were reported from Smyth, Washington, Tazewell, Botetourt, Bath, Albemarle, Henrico, James City, and Gloucester.*



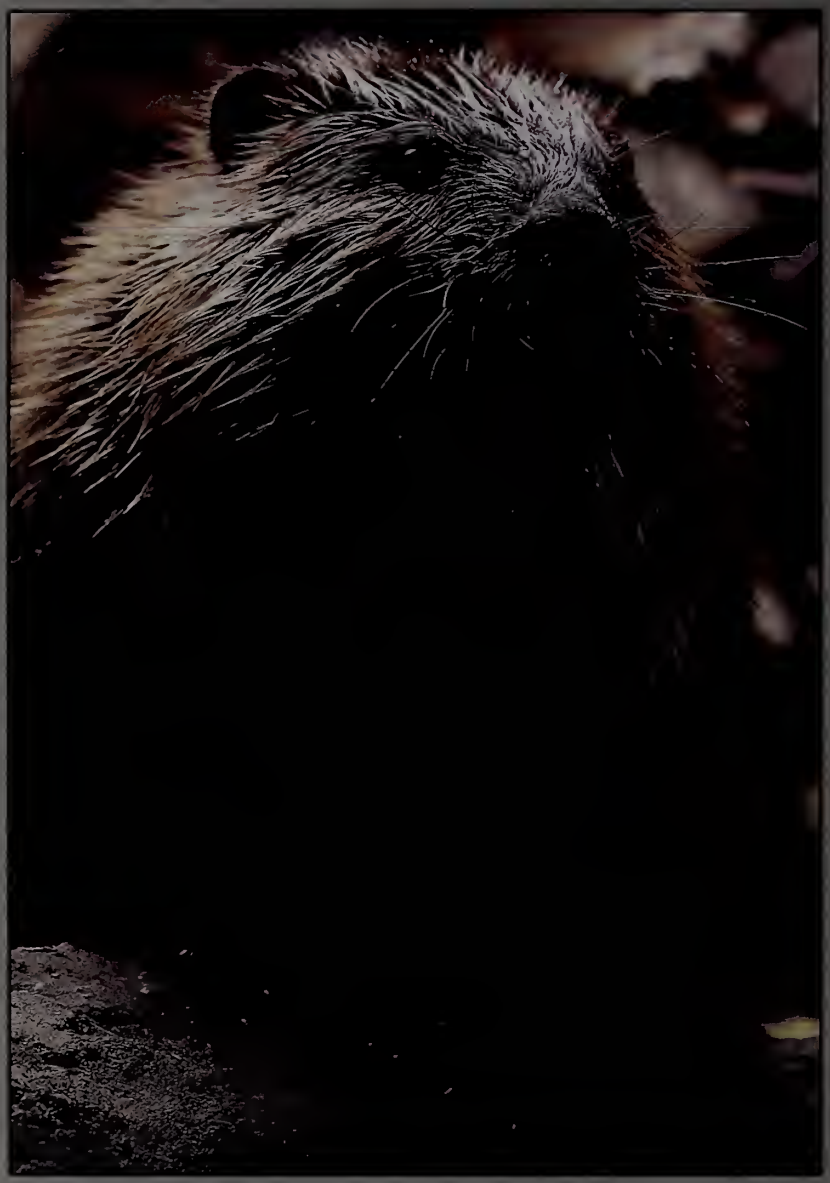
Gray wolf (Canis lupus); *photo by Lynda Richardson*

Bison (Bison bison); *photo by R.C. Simpson*

By the late 1800s, our mountain lions had moved out under the pressure of our changes and our predation on their numbers. By that time, we had also exterminated our bison. And in our ignorance, through the release, escape or abandonment of our domestic pigs, a feral pig population also became firmly established on False Cape and on what is now Back Bay National Wildlife Refuge.

Wild pig (Sus scrofa); *photo by Lynda Richardson*

Mountain lion (Felis concolor couguar); *photo by R.C. Simpson*



Beaver (Castor canadensis); *photo by Tim Wright & Lynda Richardson*

It is true that trapping destroyed our beaver population in the late 1800s, with the last known beaver killed in Dinwiddie County in 1911, but it is also true that it was the public's innocent demand for beaver pelts for hats and coats that prompted the taking of every beaver in Virginia. All of us are to blame.

Bobcat (Felis rufus); *photo by William Lea*

The settlers were not fond of the bobcat. Any predator that threatened livestock was shot indiscriminately, whether or not the threat could be substantiated. Turkeys were in great abundance in the early days, with the great stands of hardwoods in the state that supplied huge mast crops. It is even supposed that there was no need for the Indian to domesticate the turkey then, since the bird was so plentiful and available for harvest.

Turkey (Meleagris gallopavo); *photo by R.C. Simpson*

TRACKING BACK

to the troubled times 1916-1936

"But never again shall we of its native continent see the wild turkey in aught remotely comparable to its numbers in that vanished yesteryear, when, as Roosevelt somewhere tells us, those who lacked for bread subsisted on breasts of wild turkey in their wilderness feasts."

—*Ben Hur Lampman,*
Nature Magazine, *1925*

By the early 1900's, we were surviving quite nicely. We had time to look up from our labors and observe the land. We began to realize that we were losing those things we had taken for granted and we knew nothing about. There were no more beavers, no more mountain lions, no more elk, virtually no more bears, and it was not easy to bring home deer or turkeys these days.

We went into a mild panic.

In 1916 Virginia was one of the first states to establish a Game Department to regulate hunting. Enough cumulative damage had been done to the populations of native wildlife in Virginia that it was evident that we were going to lose it all if we didn't *do* something. So, we scrambled for an answer to the problem. And the easiest, quickest, most sensible thing to do was to restrict hunting. Hunting seasons and game laws became a way of life for sportsmen.

The problem at the time, however, was that we didn't have much money to enforce our laws with. In the 1920s, we had a handful of game wardens whose job entailed a lot more than enforcing game laws. If they were concerned about where their next meal was coming from, they had to check dog licenses and pick up stray dogs, since their meager salaries with the Game Department were supplemented by the counties who paid them for dog license fees collected.

Opposite: Elk (Cervus elaphus); *photo by William Lea*

It didn't help, either, that at the time the Game Department's purse strings were directly controlled by the General Assembly, with all its revenues being directly deposited into the state coffers, to be doled out in an amount as suited the legislators every year. This made for a precarious and political program of wildlife management and enforcement, if you could even dignify their actions taken by calling them that. Actually, with so little money, and no understanding of wildlife population dynamics or biology, the Game Department groped its way through those years by adopting any sensible plan proposed to increase wildlife populations.

At that time, it was simply a matter of providing protection for "desirable" species—the ones that man arbitrarily designated as useful. As a result, bounties on predators became quite popular and predator control became an honorable profession. It made perfect sense. It was relatively easy to witness a hawk or a fox grabbing a chicken, a rabbit or a squirrel, and then make that leap of faith that by eradicating the so-called "killers of wildlife," those desirable species would have a better go of it.

It was also quite sensible to get excited about the idea of stocking. If we had eradicated all of what was once here, why not import more? Oh, we had high hopes, but Nature kept complicating things. About 110 elk from Yellowstone National Park were stocked in Virginia in 1917. By the next year, the Game Department was questioning the wisdom of that action, because of agricultural conflicts. In 1970, the last of these elk was observed, having succumbed to a parasitic disease carried by white-tailed deer.

We can't count many successes during that time, but we did begin to worry about what we were doing to the land, and perhaps that was worth all our well-intentioned mistakes.

Chipmunk (Tamias striatus); *photo by Steve Maslowski*

Red fox (Vulpes vulpes fulva); *photo by Lloyd Hill*

"We have few ground squirrels," read part of a 1925 paper to the American Game Protective and Propagation Association, "They are destructive to corn and small grain . . . I believe you call them chipmunks elsewhere. It is just such things as that that we are fighting . . . Unless we suppress the pests, you will not stablilize nature."

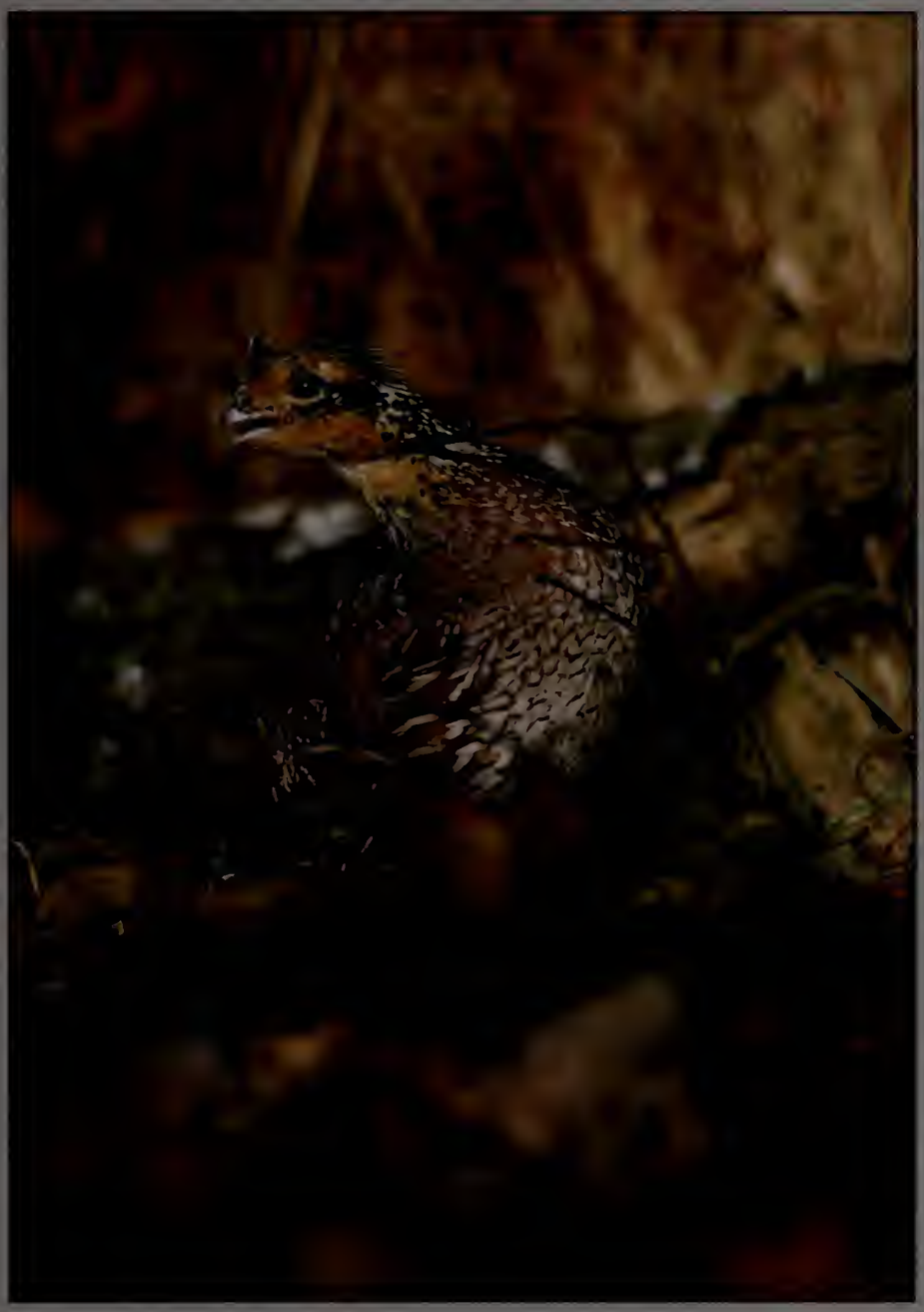
There were plenty of misconceptions in the "old days," and it seems like most of them revolved around a "man against beast" attitude. Either you worked for man by eating insects or providing him with food, or you were "agin" him. Hawks, owls, crows, cats, and foxes were believed to do great damage to rabbits, quail, and squirrels. The 1920s answer to this dilemma? Eliminate the pests.

Immature great horned owl (Bubo virginianus); *photo by Roy Edwards*

Sika deer (Cervus nippon nippon); *photo by Lynda Richardson*

In 1923, another exotic game species became entrenched in Virginia. A private individual released five sika deer on the north end of Assateague Island and 40 years later the population would threaten the stability of the island's fragile ecosystem.

Quail were treasured, even in the early days, and the feeling of the time was that under increasing hunting pressure, the thing to do was not only to conserve game, but to increase it by artificial means. Thus, the game farm concept was born—and failed.



Bobwhite (Colinus virginianus); *photo by Lloyd Hill*

Opossum (Didelphis virginiana virginiana); *photo by Deane Winegar*

"The o'possum in my State is a very bad animal . . ." —McDonald Lee, head of the Game Department in 1925. *Typical of this era, predators of any kind, be they crows, owls, hawks, or opossums, had to be eliminated, or at least kept in check, to protect prey species.*

1987-88 ANNUAL REPORT

ANNUAL REPORT DEPARTMENT OF GAME & INLAND FISHERIES

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CHAIRMAN'S MESSAGE

This past year has been one of excitement and growth in the Virginia Department of Game and Inland Fisheries. The Department's responsibility has substantially increased over the years to the point where we are not only in charge of fish and game management, but total wildlife management, boat registration and titles and boat dealer licensing as well.

In the spring of this year, the legislature approved an increase in hunting and fishing license fees, which was the first increase that we have had in over seven years. We, the directors, recognize our responsibility to our constituency and have anguished long and hard over the increases in the budget of the Department, but also realize that this increase was required to fulfill our responsibilities to the sportsmen of the state to better fill our broadened challenge in the Commonwealth. Along with the increase in license fees, the hiring of additional personnel was approved by the legislature to fill our growing needs in law enforcement, game and fish management and environmental and endangered species work.

Your directors, still frequently called "commissioners" as we were for so many years, have recognized the increased workload of the Department, and thus have increased the number of committee and regular public board meetings of the Department. Hopefully, this will provide for greater input from you, the sportsmen of Virginia, and thus make us more responsive to your needs and desires. I am very proud of the Directors for their commitment to this change, which I believe is simply another decision which shows their dedication to the activities of the Department of Game and Inland Fisheries, and to you, the hunters and fishermen of this state. I would dare say that if you asked a Director how much time he dedicated to his responsibility here at the Department, that he would say it comprises probably 10-15 percent of his monthly workload.

Interestingly enough, you who have followed the Department over the years, will remember that it was the late Senator A. Willis Roberston, a former head of the

Game Commission, who was personally responsible for the addition of the clause in the federal Pittman-Robertson Act for wildlife restoration that safeguarded your hunting and license fees from diversion to any purpose other than wildlife restoration in the state. Because of that, we have a certain automony from the political arena, a blessing that has allowed us to pursue wildlife restoration with a clear and direct vision.

This year, our accomplishments have been many. We have successfully launched the first state duck stamp program, the proceeds from which will be used for waterfowl habitat acquisition, management and research. We have also been successful in spawning, rearing and restocking 25,000 Chesapeake Bay striped bass, as part of a federal/state cooperative program to test the feasibility of stocking as a technique to restore the striped bass populations in the Chesapeake Bay. We have continued to manage our big game populations to provide the highest deer, bear, and turkey harvests on record, and we have launched two new deer management programs to provide more recreation for sportsmen and relief for landowners from crop damage. And, we have turned our attention to our public hunting areas, in a program to provide model wildlife management areas for the public.

Our successes are many, and we hope that with your support, they will continue to expand and flourish. Our work is cut out for us in this era of dwindling habitat and threats to the natural environment. More than ever, your support is needed to keep up strong and responsive to the needs of wildlife and the sportsmen of Virginia.

Henry A. Thomas, Chairman

DIRECTOR'S MESSAGE

The year just concluded, FY 1988, represents the 72nd year of the operation of the Department of Game and Inland Fisheries.

At the time the agency was created in 1916, if there had been an endangered species program, bear, deer and turkey would have headed the list. Today, all of these species are relatively abundant throughout the Commonwealth and herein lies the secret of the continuing success of this agency—the wildlife resource is always placed first, ahead of all other considerations.

It is interesting to note that, in 1916, when this agency was created, the price of a statewide hunting license was $3.00. At that time, in terms of buying power, the license was far more expensive than it is today.

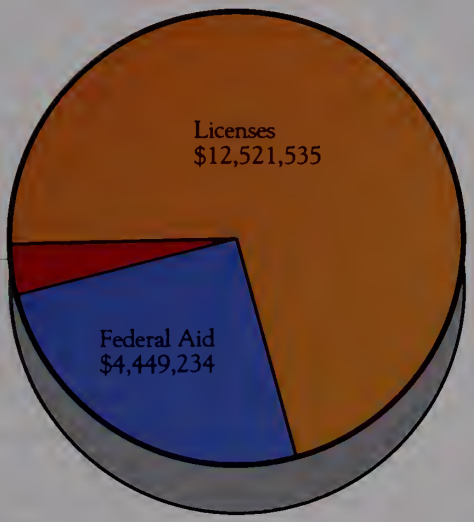
The first license fee increase since 1981 was appproved by the General Assembly in its last session. It amounted to a 60% increase in resident license fees and a 100% increase in nonresident license fees. The basic hunting or fishing license fee increased from $7.50 to $12.00. This increase allowed the agency to catch up with the inflationary spiral that took place from 1981 through 1987. Although the license fees went up by over 60%, the revenue that will be received by the agency will only increase 22 percent this year. The full benefits of these increases will not be realized until July of 1991 when revenues will peak out at 24 over today's figures. If the present rate of inflation continues at five to six percent, the agency's real purchasing power in 1991 will be less than it was in 1981!

As we look to the future it is apparent that we must look to new and innovative ways to secure funding for this agency so that all of the various segments of the public who benefit from our activities have the opportunity to participate in supporting them.

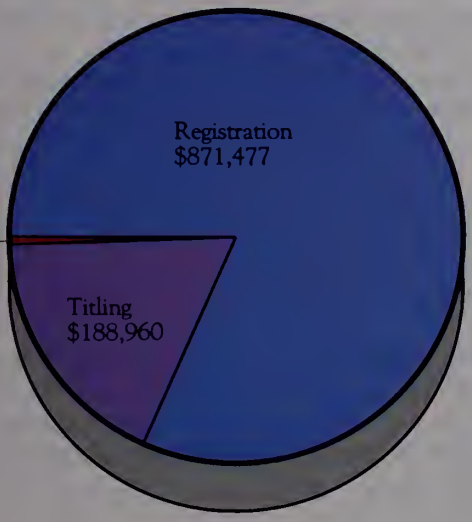
The year just past was an exciting and challenging one. One of the new problems the agency faced was dealing with the growing number of livestock depredations caused by marauding coyotes. Because the U.S. Depart-

James A. Remington, Director

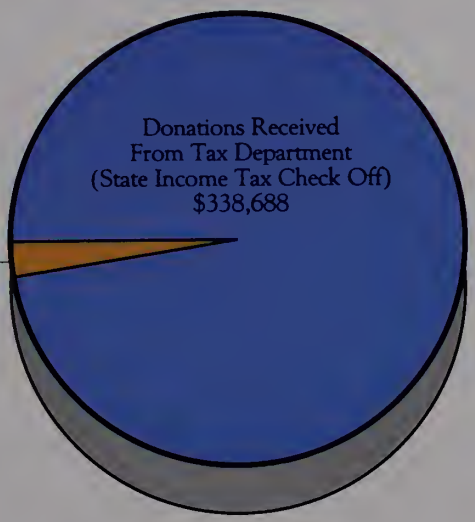
Game Protection Fund
Receipts
$17,647,047



Boat Fund
Receipts
$1,065,792



Nongame Fund
Receipts
$346,979



ment of Agriculture, the agency primarily responsible for dealing with predatory coyotes, was not geared up to meet their responsibilities in Virginia, this agency agreed to use its resources to fill in the gap until the federal agency could.

In an effort to provide Virginians with an effective mechanism to deal with coyotes, a coyote specialist was hired and stationed in Roanoke to coordinate coyote control operations. In addition, a toll-free line was established to permit farmers suffering from coyote predation to swiftly report incidents. The staff was organized to react to complaints concerning coyotes and an expert coyote trapper from Montana was employed to train the staff in coyote trapping techniques. In addition, several seminars were conducted to acquaint farmers and trappers with active and passive measures for dealing with coyotes. To date, it appears that the measures taken so far are effectively dealing with the problem.

For several years the agency has been involved in a program of stocking striped bass in tidal waters. Since 1976, several million stripers were stocked in the James River system, but, until recently there has been little information available with which to evaluate the success of this effort.

A new program to test the effectiveness of stocking was initiated recently. The test rivers are the Pamunkey and Mattaponi in the York River system. The concept is to catch spawning stripers from these streams, spawn them out at our Brookneal Hatchery and send the fry to federal holding ponds where they will grow to four to six inches in length. The young stripers will be tagged with coded wire tags and released in the York River system the following fall.

During the spring of 1988 biologists from this agency captured sufficient spawning stripers from these rivers to produce over two million fry. It is expected that several hundred thousand fingerlings will be tagged and released this fall.

To ensure the management of this project, a biologist has been added to the staff to coordinate this program and other activities on tidal water, and the Stevensville State Fish Hatchery, which is located in King & Queen County, is being renovated to accommodate striped bass spawning. This will eliminate the need to transport these fish over a hundred miles to the Brookneal facility and will result in a more efficient operation.

Several important cases dealing with the sale of wildlife and the wholesale slaughter of protected migratory birds were completed by the Law Enforcement Division during the year. One case involved the taking and selling of hundreds of deer in the vicinity of the Shenandoah National Park. Another resulted in the apprehension and conviction of a number of persons involved in the illegal taking of over one hundred black bears for the purpose of selling their galls and hides. Finally, there was another case where the staff of a large shooting preserve was arrested for the illegal killing of a large number of protected hawks and owls.

The growing number of cases involving the commercialization of wildlife has heightened the awareness that our wildlife heritage can be and is being exploited for private financial gain and that stronger legal tools are required to deal effectively with this continuing problem.

The year also witnessed the issue of the state's first waterfowl stamp which may be purchased by the public on a voluntary basis. The sale of the prints of the artwork that appears on the stamp was very successful and promises to be the most successful promotion of this kind experienced in the United States. Income approaching $800,000 is anticipated from the first year's sales. Characteristically, interest in art work is highest for the first stamp issued by a state. Significant reduction in annual revenues can be expected for subsequent issues of the state waterfowl stamp.

The introduction of two bold new wildlife management programs has been well received by the public. One program, the Damage Control Assistance Program (DCAP), deals with destruction of crops by wildlife, mainly deer. Under this program landowners suffering crop depredations by wildlife are offered the option of destroying the offending animals at the time the damage is reported or waiting until the open season when they will be issued special stamps. These stamps are used to validate Special Use Tags, one of which is furnished with each big game license. This will assist farmers in removing problem animals and afford hunters more hunting opportunities. This program was well received by landowners and the public alike.

The second program, the Deer Management Assistance Program (DMAP), offers the opportunity to landowners or hunt clubs to participate in a program that is designed to more effectively manage deer on their lands. The club or landowner may select to manage for trophy deer or for a well-balanced deer herd and biologists will assist in attaining that goal. The club or landowner is required to collect certain data from deer harvested and, using this data, biologists will prescribe the harvest strategy required to attain the goals. Where necessary, participants will be issued extra deer permits to harvest those antlerless deer that must be taken to meet program objectives.

One of the highlights of the year was the banquet celebrating the 50 years of cooperative wildlife management on the National Forests between the U.S. Forest Service and our agency. This program has become a model nationally for cooperation between state fish and game agencies and the U.S. Forest Service and has been very successful over the years. Both parties look forward to another 50 years of successful cooperation as a result of the signing of a second 50 year agreement.

James G. Remington

GAME PROTECTION FUND

Highlights

Wildlife Conservation: Old Dominion hunters enjoyed an excellent 1987-88 season with record harvest for wild turkey and black bear and the second best harvest for white-tailed deer. Two new deer management programs were developed in response to crop damage and the need for improved herd health. A plan was also developed for responding to coyote depredation problems.

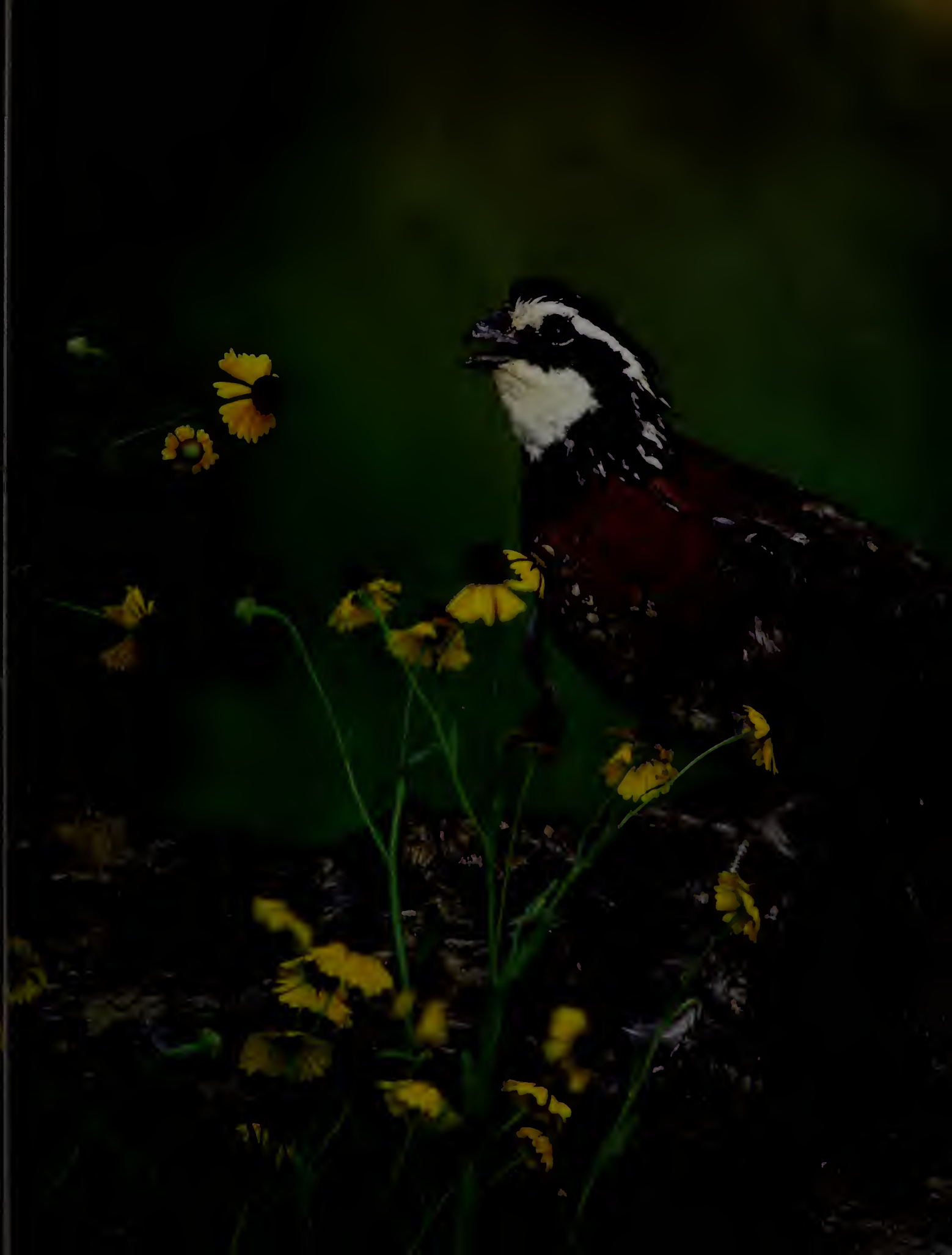
A program for model wildlife habitat development was implemented on the 30 state-owned Wildlife Management Areas. The agency sponsored a small game seminar which attracted over 300 interested landowners and sportsmen. Wildlife restoration activities included the relocation of 37 wild turkeys, 23 black bears, and 53 white-tailed deer.

Fish Conservation: Lake Frederick in Frederick County and Briery Creek Lake in Prince Edward County were completed along with the acquisition of the Stewart's Creek property in Carroll County containing approximately five miles of native brook trout stream. Investigations were concluded on Back Bay and a habitat analysis of the Roanoke bass. Additionally, over 15.8 million warmwater fish, 2.6 million coldwater fish and 3.3 million anadromous striped bass were produced and released.

Land Acquisition and Structures: Acquisition of five parcels totaling 1,251 acres brought total agency holdings up to 180,781 acres. Seven new boat landings were opened around the state. Overall, a total of 17 development projects aand five land acquisition projects were completed at a total cost of $1.8 million.

Law Enforcement: Over 3,734,901 miles of land were patrolled. In addition, 24,170 students completed our Virginia Hunter Safety program and over 367 new volunteer Virginia Hunter Safety Instructors were trained.

Education: Virginia's First of State waterfowl stamp/print program was initiated, a weekly television news service was started along with a new quarterly newspaper.



BOAT FUND

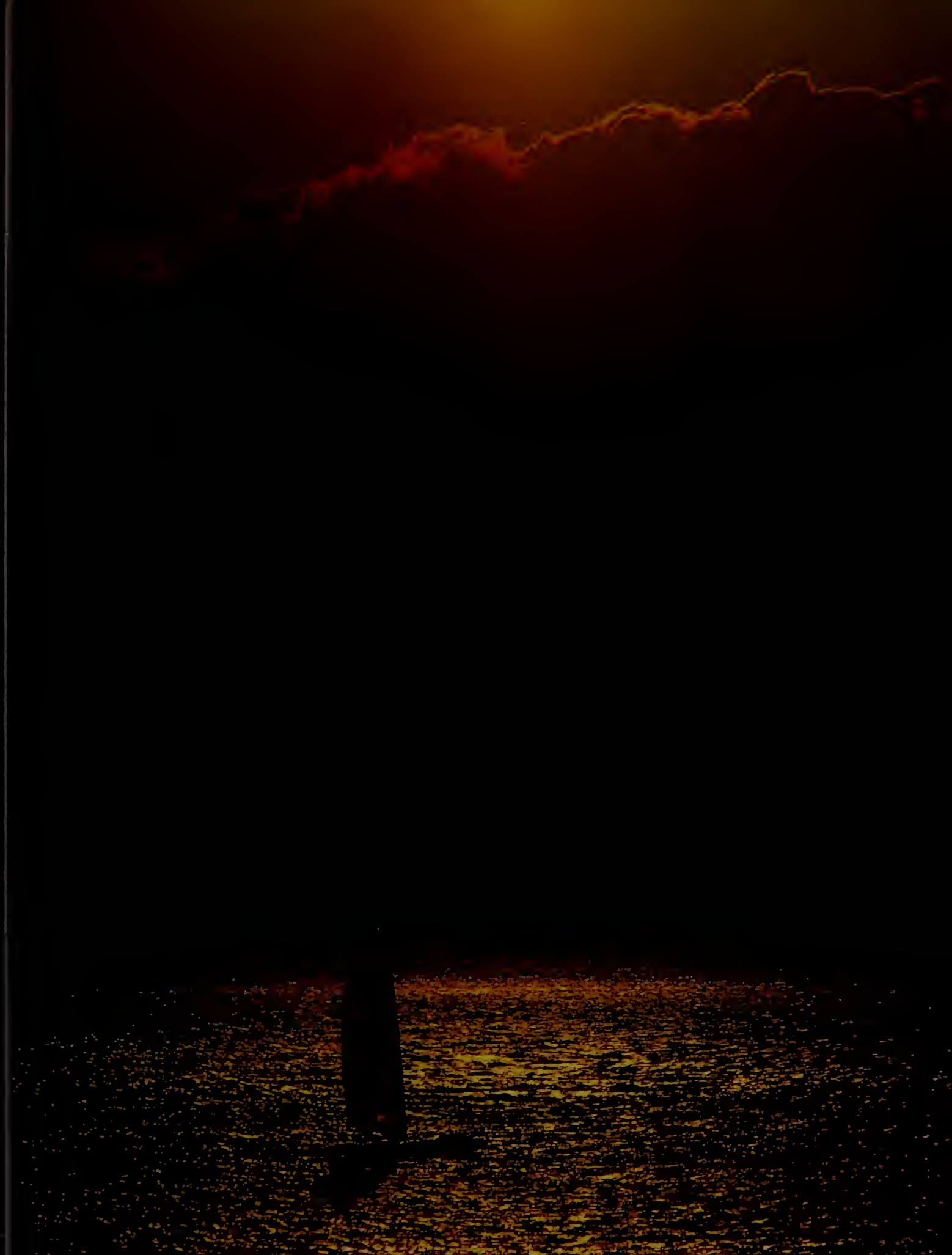
Highlights

Boat Landing Construction and Maintenance: Boat landing sites on the James River in Henrico and Buckingham counties were acquired for future development. New boat landings were constructed at seven locations: Mill Creek Reservoir in Amherst County, the New River in Giles County, two on the Shenandoah River in Page County, the Elizabeth River in Portsmouth, the Maury River in Rockbridge County, and the Nottoway River in Southampton County. These landings cost $416,715 to develop. Three landings on Lake Gaston and one on Claytor Lake were renovated or expanded at a cost of $93,491. These expenditures together with $138,617 for operations and maintenance resulted in direct expenditures of $648,823 on boat landings.

Law Enforcement: Support for 177,099 miles of water patrol was provided, in addition to law enforcement support for boating education. An aggressive offensive was instituted to detect boat operators under the influence of drugs and alcohol.

Education: Over 27,000 students completed a boating safety education course with the support of Game Department personnel, representing about 15% of all registered Virginia boat owners. Two television and 260 radio programs concerning boating safety were broadcast throughout the state; public lectures on boating safety were given to 3,000 people, and thousands of posters, booklets, and pamphlets on boating safety were distributed to the public.

Also, in 1988, this Division sponsored and encouraged the inspection of 11,847 Virginia recreational vessels for proper safety equipment. Inspections were made by highly qualified volunteers.



NONGAME FUND

Highlights

Wildlife Research: Virginia's bald eagle population enjoyed a banner year with 81 active nest producing a total of 118 young hatched. Protective fencing was placed around the entrance to one of the most important wintering caves for endangered species in Southwest Virginia and 28 caves were monitored for bat utilization. Ten captive-raised peregrine falcon young were successfully released at mountain release sites in the western part of the state. Efforts to monitor flying squirrel nest boxes were continued with a total of 292 boxes at 22 locations inspected. Nineteen of the federally listed northern flying squirrels and 97 of their more common southern counterparts were examined during the year. Monitoring of colonial bird populations yielded a total of 63,700 breeding birds on the Eastern Shore. More than 1,300 osprey nests were located and nearly 500 nests were monitored for nesting success. A survey of the Barrier Islands resulted in the location of 103 breeding pairs of endangered piping plovers and 23 state-listed Wilson's plovers.

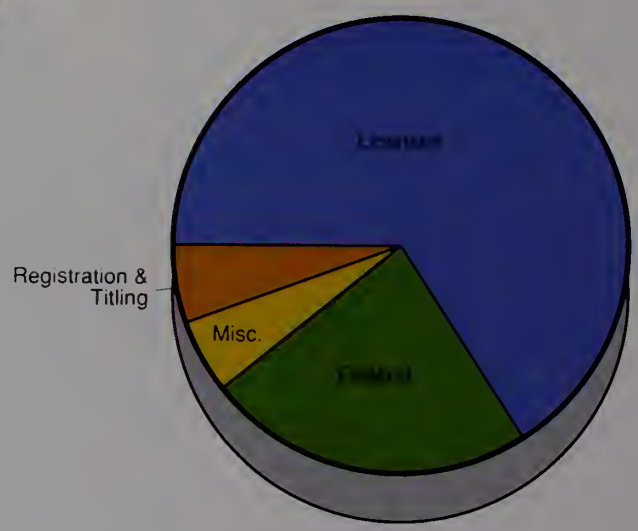
Aquatic Research: Marine mammal research funds supported the effort to identify the causes behind the mortality of hundreds of bottlenose dolphins in the summer of 1987. The sea turtle research program continued to gather vital information on these endangered and threatened animals. Preparation of a book on Virginia's reptiles and amphibians is well underway and will be an instrumental tool in understanding and managing these species. Investigations were also conducted on the distribution of the endangered fringed mountain snail and the effect of acid precipitation on amphibians breeding in temporary ponds.

Education: This is the fifth year that Virginia has been involved in Project WILD. During this period, some 5,000 educators have attended WILD workshops. This past spring saw the introduction of a new aquatic supplement to the program.

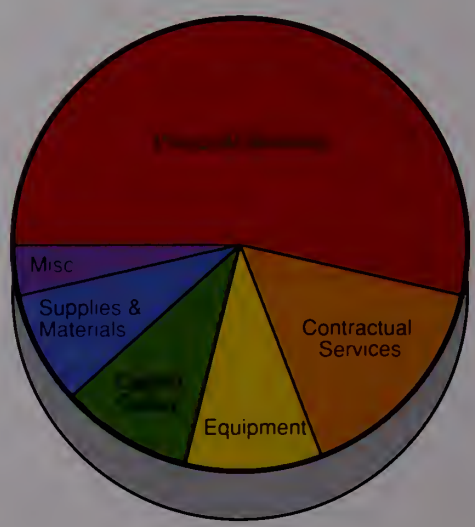
The Nongame and Endangered Species Fund provided money for a renovation of the visitors center at Maymont Park in Richmond. The walk-through display features a look at Virginia's freshwater ecosystem.

Statement of Consolidated Fund Receipts, Expenditures, and Fund Balances

Receipts



Expenditures

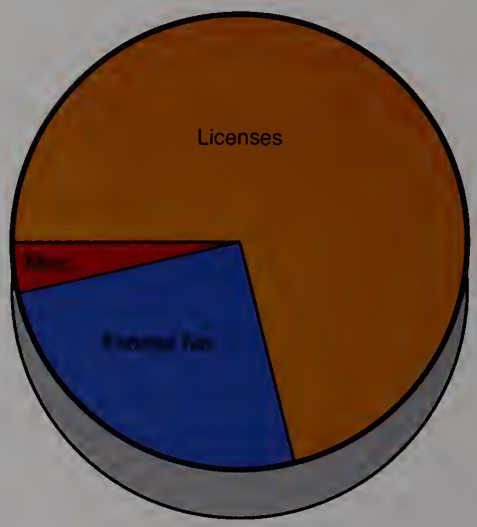


July 1, 1987 - June 30, 1988

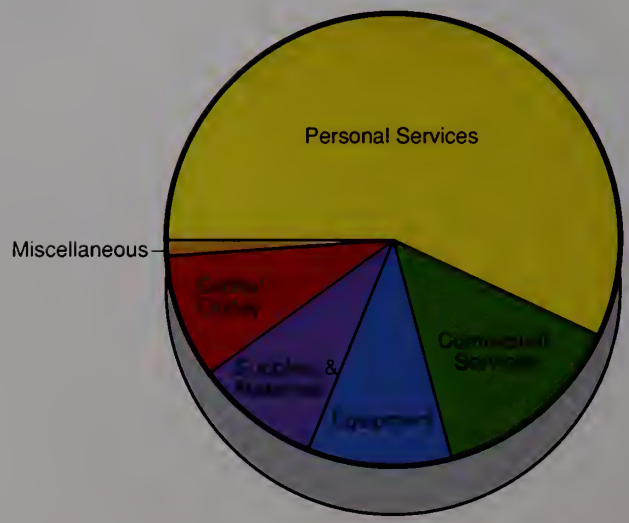
Fund Balance, July 1, 1987			7,166,377.06
Receipts			
Licenses	12,521,535.82		
Registration & Titling	1,060,437.44		
Federal Aid	4,449,234.58	18,031,207.84	
Miscellaneous:			
Nongame Donations	346,979.15		
State Publication Sales	291,856.75		
Sale of Surplus Property	35,591.71		
Deferred Revenue	198,532.00		
Other	155,651.69	1,028,611.30	19,059,819.14
Expenditures			
Maintenance and Operation			
Personal Services	11,139,814.15		
Contractual Services	3,264,918.11		
Supplies and Materials	1,699,284.77		
Equipment	2,005,256.61		
Miscellaneous	721,558.13	18,830,831.77	
Capital Outlay		1,954,994.45	(20,785,826.22)
Cash Transfers:			
Game Protection Fund		233,287.65	
Nongame Fund		53,103.10	(286,390.75)
Increase Travel Advance and Petty Cash Funds		12,000.00	(12,000.00)
Miscellaneous Reconciliation Adjustments			(1,197.90)
Fund Balance, June 30, 1988			5,140,781.33

Statement of Game Protection Fund Receipts, Expenditures, and Fund Balances

Receipts



Expenditures

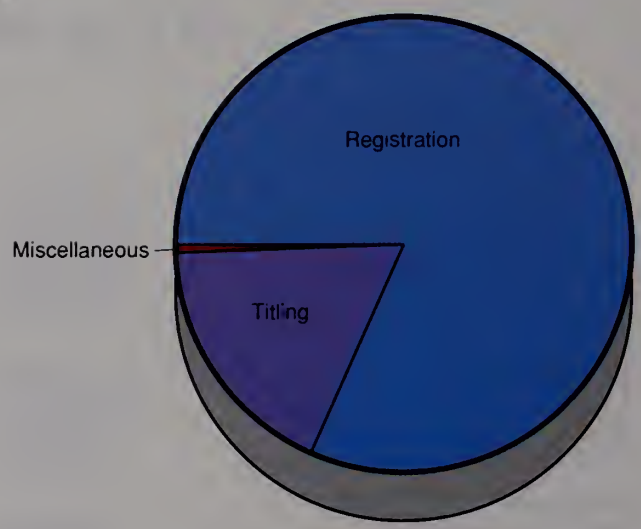


July 1, 1987 - June 30, 1989

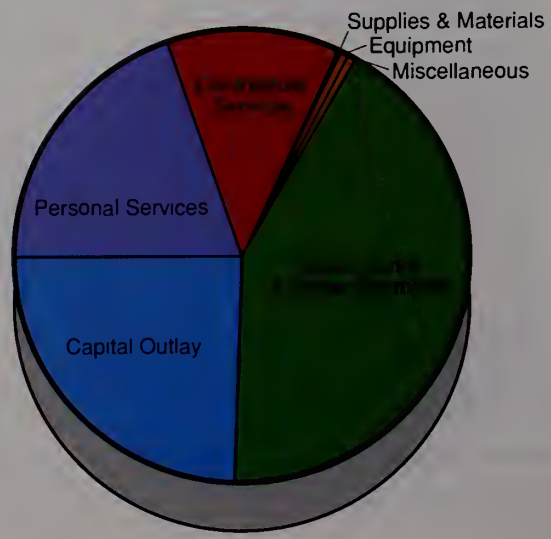
Fund Balance, July 1, 1987			5,414,483.42
Receipts			
Licenses:			
Hunting Licenses	7,478,941.36		
Fishing Licenses	4,772,458.50		
National Forest Stamp	346,971.75		
Miscellaneous Licenses	422,143.92		
Refunds to Agents	(498,979.71)	12,521,535.82	
Federal Aid:			
Pittman-Robertson	1,204,749.54		
Dingell-Johnson	2,727,067.27		
Biagi Bill	343,686.00		
Miscellaneous	173,731.77	4,449,234.58	
Miscellaneous:			
State Publication Sales	291,856.75		
Miscellaneous Sales	32,877.35		
Rentals	8,647.63		
Sale of Surplus Property	35,591.71		
Vehicle Parking Facilities	1,902.50		
Deferred Revenue	209,662.00		
Other	95,739.36	676,277.30	17,647,047.70
Expenditures			
Maintenance and Operation			
Personal Services	10,768.022.11		
Contractual Services	2,642,357.87		
Supplies and Materials	1,670,567.19		
Equipment	1,965,866.02		
Miscellaneous	187,211.13	17,234,024.32	
Capital Outlay		1,663,410.44	(18,897,434.76)
Cash Transfers		233,287.65	(233,287.65)
Increase Travel Advance and Petty Cash Funds		12,000.00	(12,000.00)
Miscellaneous Reconciliation Adjustments			(115,525.24)
Fund Balance, June 30, 1988			3,803,283.47

Statement of Boat Fund Receipts, Expenditures, and Fund Balances

Receipts



Expenditures

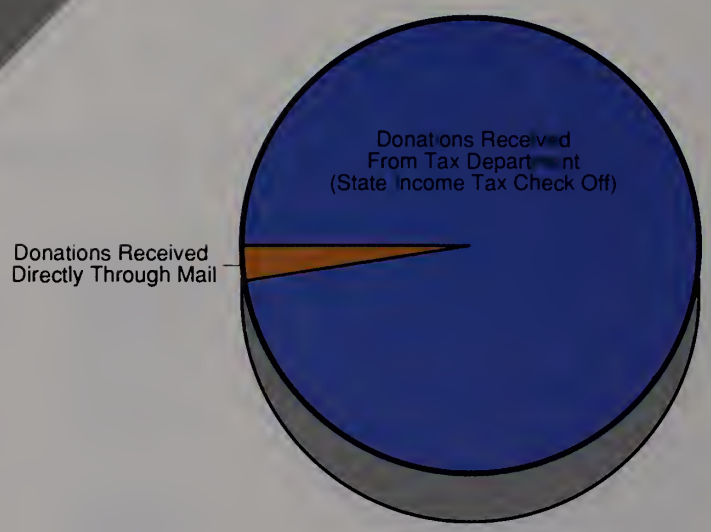


July 1, 1987 - June 30, 1988

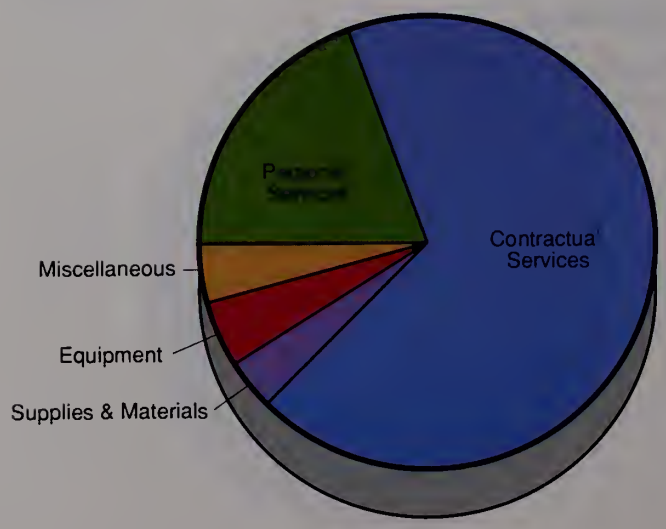
Fund Balance, July 1, 1987			861,108.49
Receipts			
Registration	871,477.44		
Titling	188,960.00	1,060,437.44	
Miscellaneous			
Deferred Revenue	(11,130.00)		
Other	16,484.85	5,354.85	1,065,792.29
Expenditures			
Maintenance and Operation			
Personal Services	234,713.12		
Contractual Services	143,413.32		
Supplies and Materials	2,541.43		
Equipment	7,204.38		
Intra-Agency Transfer Payments	499,610.52		
Miscellaneous	5,725.44	893,208.21	
Capital Outlay		291,584.01	(1,184,792.22)
Miscellaneous Reconciliation Adjustments			-0-
Fund Balance, June 30, 1988			742,108.56

Statement of Nongame Fund Receipts, Expenditures, and Fund Balances

Receipts



Expenditures



July 1, 1987 - June 30, 1988

Fund Balance, July 1, 1987			890,785.15
Receipts			
Donations:			
Received from Dept. of Taxation (State Income Tax Checkoff)	338,688.11		
Received Directly by Department Through Mail	8,291.04		346,979.15
Expenditures			
Maintenance and Operation			
Personal Services	137,078.92		
Contractual Services	479,146.92		
Supplies and Materials	26,176.15		
Equipment	32,186.21		
Miscellaneous	29,011.04	703,599.24	
Capital Outlay		-0-	(703,599.24)
Cash Transfers		53,103.10	(53,103.10)
Miscellaneous Reconciliation Adjustments			114,327.34
Fund Balance, June 30, 1988			595,389.30

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Gray squirrel (Sciurus carolinensis carolinensis); *photo by Jeff Watson*

Even though they were ignorant of sound biological principles in the early days, sometimes a visionary idea would surface: "A careful study leads me to the conclusion that the most important phase of wild life conservation lies in the creation of sanctuaries where the wild life can be free from molestation of all kinds," wrote Mac Hart of the Game Department in 1925, ". . . By locating game sanctuaries several miles apart, game reared on same would come off and stock the surrounding country . . ."

Fox squirrel (Sciurus niger vulpinus); *photo by Vinyard Brothers*

TRACKING BACK

to the challenge of restoration 1937-1970s

Opposite: White-tailed deer (Odocoileus virginianus); *photo by Tim Black*

"Passing both Senate and House in almost record time, the bill to provide Federal aid to the States on wildlife restoration projects is expected to become law almost immediately, since it now needs only the presidential signature . . . One senator, asked by General Wildlife Federation secretary Carl Shoemaker if voters were writing and telegraphing in support of the bill, answered, 'My gracious, yes! They're flooding Washington with letters!' "

—Virginia Wildlife, *September 1937*

By the end of the 1930s, our wildlife was still in trouble, probably the worse it had ever been in, despite the good-hearted efforts of the Virginia Game Department. We were losing wildlife and we were losing habitat, and we didn't have the money or the manpower to do much of anything about it. But, something big happened in 1937, something that a former head of the Game Department, Senator A. Willis Robertson, had a great hand in. The Federal Aid in Wildlife Restoration Act, or the Pittman-Robertson bill, was passed, and wildlife management was born. With a fund created that diverted the federal excise tax on sporting arms and ammunition and sent it back to the states in a 3 to 1 matching amount with state hunting license fees, Virginia now had a stable means to pursue the restoration of its wildlife the *right* way, through the use of the scientific method of research, experimentation, and duplication, instead of backwoods lore.

In 1939, the first Virginia P-R projects were approved: one to aid in restocking deer in western Virginia; two projects on the wild turkey and one project evaluating the effects of clearings in forest wildlife management. This was the time of land acquisition for public hunting, and solid research carried out in cooperation with the newly-established Cooperative Wildlife Research Unit at Virginia Tech. No more was wildlife management a hit and miss operation, with blunders to be repeated over and over again throughout the country. Now, the latest scientific information was systematically distributed among professionals, and successes and failures documented. By 1943, Virginia had proudly produced the first comprehensive study on the life history and management of the wild turkey in the nation. Progress in wildlife conservation had begun.

Still, we struggled with our own successes and failures. For example, Kit Shaffer, retired game biologist, tells how in the late '40s, he live-trapped and tagged 125 raccoons in Back Bay and relocated them in southwestern Virginia, hoping to replenish the 'coon populations there. None of the 'coons were ever heard of again. And, then there was the dismal failure of the pheasant introduction into the state, before wildlife professionals learned that the introduction of exotic species was not a sound practice to pursue. But, they were *learning*.

And, there was big successes, too, like the turkey and deer and beaver restoration efforts. The key, though, in all these major successes was that the funding was available through the P-R fund, and the manpower through the Cooperative Wildlife Research Unit and our own research biologists, to *experiment*, and transform the failures, eventually, into understanding.

Beaver (Castor canadensis); *photo by Lynda Richardson*

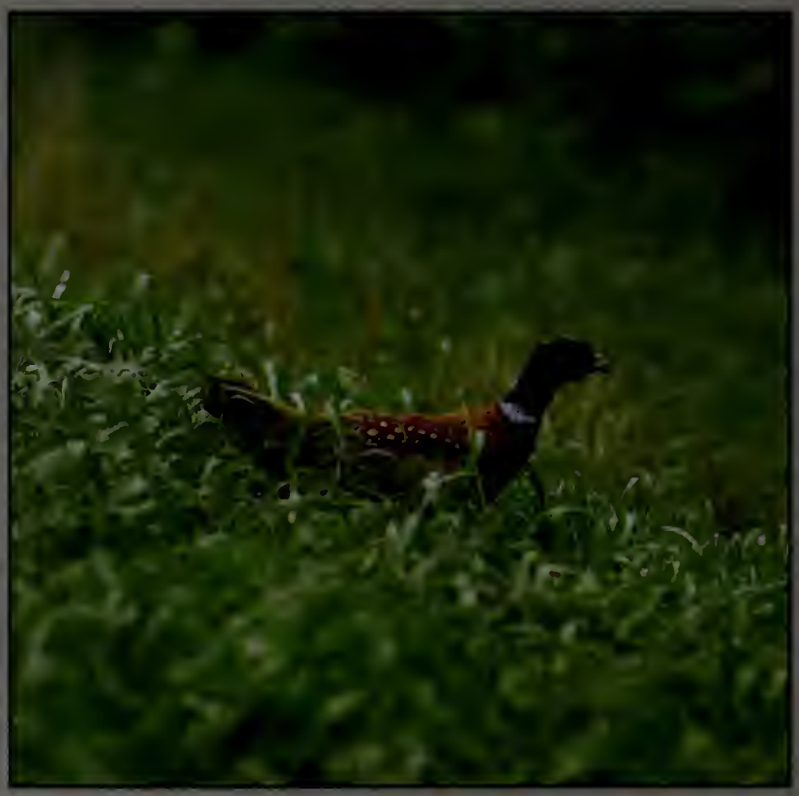
Otter (Lutra canadensis lataxina); *photo by Gregory Scott*

In the 1940s, because of the passage of the Pittman-Robertson Act, we were able to begin a full-scale wildlife restoration effort. Beavers were one of the first species to be restocked in Virginia. By the end of World War II, beavers occupied every county in the state, helping to provide habitat for the otter, the wood duck, and countless other wetland species.

Raccoon (Procyon lotor); *photo by William Lea*

In the 1940s and 50s, we live-trapped raccoons in Back Bay and relocated them in Southwest Virginia in an attempt to increase populations there. Although the experiment failed, we learned that you can't take animals from a marsh environment, transplant them in the mountains and expect them to adapt and survive. We were learning how important habitat is to survival.

As it is in any effort to understand the unknown, successes and failures dot our history of wildlife management. We tried stocking over 70,000 pheasants in the 1950s, hoping they would take hold, but like the experiences of all the other states south of the Mason-Dixon line, the project failed. We were learning the wisdom of native—not exotic— species management.



Ring-necked pheasant (Phasianus colchicus); *photo by R.C. Simpson*

Black bear (Ursus americanus americanus); *photo by Jeff Watson*

It has only been within the last 20 years that we have learned much about our bears. Because of the expense of the specialized equipment needed to conduct research on bears, it wasn't until Pittman-Robertson funds came available that we began to understand this secretive animal. Today, Virginia harbors possibly the highest documented concentration of black bears outside of Alaska, and we're still learning more about these great creatures and their habitat needs.

Snow geese (Chen caerulescens); *photo by F. Eugene Hester*

With the sportsmen's federal dollars coming into Virginia through the passage of the Pittman-Robertson Act, we were able to turn to the acquisition of public hunting lands, and especially wetlands, that are so crucial to the health of our migrating waterfowl populations. In addition, waterfowl banding became an important wildlife management tool, and we became active in goose and wood duck banding operations to understand the migration patterns and natural history of our waterfowl.

Turkeys (Meleagris gallopavo); *photo by Glenn Smith*

The wild turkey taught us plenty about wildlife management. First, we learned that restocking domesticated wildlife doesn't work. Then, after rearing and stocking nearly 22,000 offspring of wild birds, we realized that breeding wild turkeys and restocking their young is folly, mostly because the released young aren't woods-wise. Finally, we hit success with live-trapping and transplanting wild turkeys and today the restoration of the wild turkey in the state is one of our proudest achievements. Knowledge never comes easy.

Turkey hunter; photo by Janet Shaffer

TRACKING BACK

and looking forward . . . 1980s-?

Eastern cottontail rabbit (Sylvilagus floridanus); *photo by Steve Maslowski*

Opposite: White-tailed deer (Odocoileus virginianus); *photo by William Lea*

"Civilized man is the only creature ever to have lived on the earth that waged a war of extinction against the things he wanted and the things that he ultimately came to need most."

—Justus H. Cline, in an address delivered before the Wildlife Section, 1938 Institute of Rural Affairs

Like it or not, wildlife in this state is going to have a rough go of it in the future. You ask our wildlife biologists what they think some of the hardest problems will be, and invariably the answers lead us back to ourselves. "Somebody wants to run a pipeline somewhere, somebody else wants a nuclear waste site. We've got developers, environmental degradation and shopping malls. And more people."

We are a selfish lot. It seems we always have some other immediate use for the land which takes priority over that which we need the most. We want so much from our land. And we refuse to believe that we can personally destroy it all.

We at the Game Department know better. We know what is happening. We have the statistics that tell us how fast habitat is disappearing, and how quickly what hunting land is left is filling up. We hear of the inevitable conflicts that arise from too many of anything, be it bears, deer, or humans, and we struggle to find ways to ease them. We've started two new deer management programs this year that encompass 500,000 acres in the state; one which helps relieve wildlife-related crop damage while providing more hunting opportunities, and the other which allows hunt clubs to more intensively manage their deer herds. We're trying hard to make more public land accessible to hunters, as the private land gets locked up in subdivisions or hunt clubs, by working out cooperative agreements with refuges, state and local parks. And, we're working on the quail puzzle, turning our attention to the mystery of small game management and trying to learn what the limiting factors are. And, we've learned the wisdom of turning our attention to the management of habitats rather than individual species.

It would probably be best, though, to simply admit that we're holding back the inevitable, if there wasn't something that we've learned from working with wildlife for over 70 years that keeps us from despair. We know that if that one ingredient is still there, if that one magical word called "habitat" still exists, then we've got a chance. Because, we've learned that though we have developed the power to eliminate life, we know so little about the creative force to survive. As one of our retired wildlife biologists put it: "You know, we never gave wildlife enough credit for all our success stories. It's nice to say that maybe management did it, maybe law enforcement, maybe people themselves are the reason we have more deer and turkeys. But, the species themselves have been very adaptable. In spite of having 20 or 30 times the number of hunters today than we had back then, and losing habitat, wildlife has survived."

And there's one other thing to be pondered, especially for us who have a hard time with our own selfishness. Jim Clark, a waterfowl guide in Back Bay, once lamented the loss of wetlands, of open space, of plain old habitat. "You need a refuge for humans," he said, "just like you need one for animals." And those words may have more truth in them than we care to admit.

Peregrine falcon (Falco peregrinus); *photo by R.C. Simpson*

Our endangered species program, in its sixth year of operation and funded by a voluntary tax-check off, has been censusing migrant peregrine falcons and successfully introducing captive-reared peregrines at mountain hack sites in the state.

Peregrine hacking site; photo by R.C. Simpson

Coyote (Canis latrans); *photo by Charles Schwartz*

Turkey (Meleagris gallopavo); *photo by Glenn Smith*

It was once believed that a wild turkey population required 5,000 acres of hardwoods to survive. Our turkeys, we have discovered, have since declared that theory hogwash and proceeded to populate those areas we just knew would never support turkeys. And though the coyote expansion into Virginia was probably not much of a surprise to most biologists, these two examples of an animal's ability to adapt to change may very well ensure a species' surival when we have run out of answers—and hope.

American toad (Bufo americanus);
photo by Lynda Richardson

Red spotted newt (Notophthalmus viridescens viridescens);
photo by Lynda Richardson

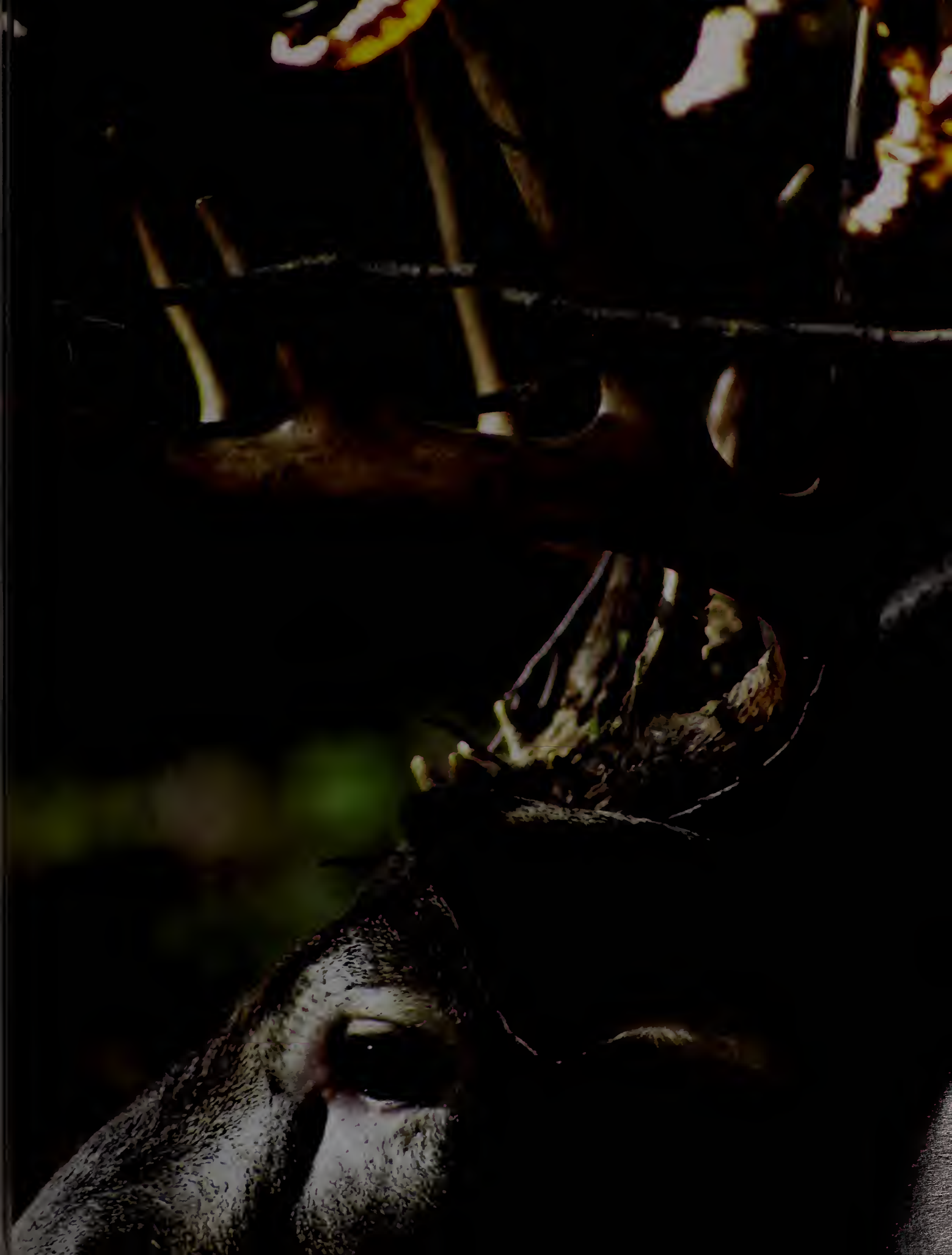
Jefferson salamander (Ambystoma jeffersonianum);
photo by Lynda Richardson

These species haven't always been cared about. Oh, a few eccentric folks had been known to flip rocks or seine ponds in search of amphibians and reptiles, but mostly nobody cared much about them until recently—when we finally learned that you make fewer mistakes when you make decisions with the big picture in mind; when you care equally about it all. And that means understanding what's in it. So, we're playing catch-up right now, trying to first see what wildlife we have, and what we don't have, in the hopes of seeing it all more clearly.

Immature bullfrog (Rana catesbeiana); *photo by Lynda Richardson*

Marbled salamander (Ambystoma opacum); *photo by Lynda Richardson*

Mallard (Anas platyrhynchos); *photo by Mark Degan*

Otter (Lutra canadensis lataxina);
photo by Dinny Slaughter

The problems are puzzling these days. With our hearts, our minds, and our money, we've brought deer and beavers and otters and turkeys back to the state. It's pretty remarkable, and it's enough to make us think that no problem is too big to solve, until we face the quail dilemma and the waterfowl crisis, and acid rain, and above all, the simple loss of habitat. *Is habitat too obscure a concept to care about? People will write letters about eagles and whales and black-footed ferrets, but who will defend the land from ourselves? That is the question we've got to answer, the problem that we simply have to solve. The future of wildlife hinges on it all.*